

Betico SB1 Compressor

Unloader Kit Installation Manual

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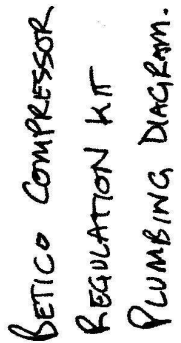
Note: Ensure all parts that require painting are painted prior to starting job.

- Valve clamp (Spider) x 2
- Inlet valve retainer x 4
- Pressure regulator valve bracket x 1
- Air pressure gauge bracket x1

Betico Unloader Kit – Assembly Instructions

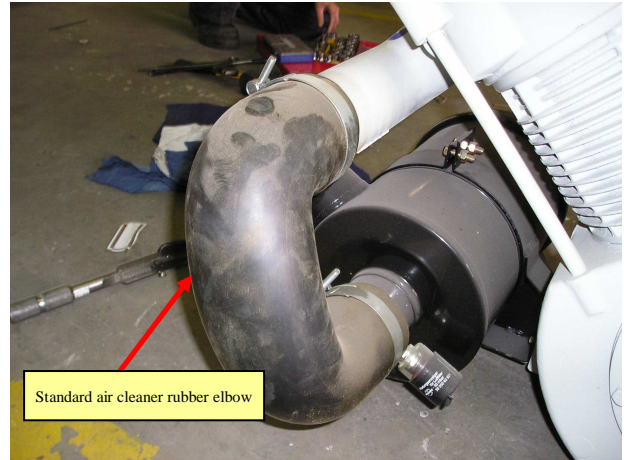
BOM for Betico Unloader Kit

Item code	Description	Qty	Picked
3021501	VALVE BODY - INLET	4	
3034801	VALVE RETAINER - INLET	4	
3038877	BRACKET (Unloader kit)	1	
3060764	SINGLE REGULATOR SCREW	5	
3064907	Valve retainer Clamp Cover	2	
3067900	VALVE LID - INLET	4	
4000091	STUD	4	
4001222	NUT (Unloader kit)	4	
4001669	O RING (Unloader kit)	8	
4001743	SEALING RING	4	
4001867	VALVE PISTON (Unloader kit)	4	
4001966	O RING (Unloader kit)	4	
4002360	WASHER (Unloader kit)	1	
4002543	Oil pressure gauge – for unloader kit	1	
4002642	Oil pressure gauge bracket – for unloader kit	1	
4002782	SPIDER HUB (Unloader kit)	4	
4002881	SPRING TOP (Unloader kit)	4	
4002980	SPRING (Unloader kit)	4	
4023150	COPPER WASHER (Unloader kit)	11	
4033084	REDUCING BUSH (Unloader kit)	1	
4033191	NUT	1	
4035287	OLIVE	12	
4035683	6mm INSERT	12	
4036772	SINGLE SWIVELLING CONNECTOR	1	
4037333	DOUBLE SWIVELLING CONNECTOR	4	
4037622	NYLON TUBE	4	
4037838	DOUBLE REGULATOR SCREW	1	
4059360	LOCKNUT (Unloader kit)	1	
4447003	LOCKNUT	1	
4668707	PILOT VALVE	1	
4691253	Fitting - Oil pressure line	2	
4729533	Reinforced Rubber elbow	2	
5297101	DISK SET - THIN	4	
5297200	DISK SET - THICK	4	
5956979	VALVE SPRING	24	

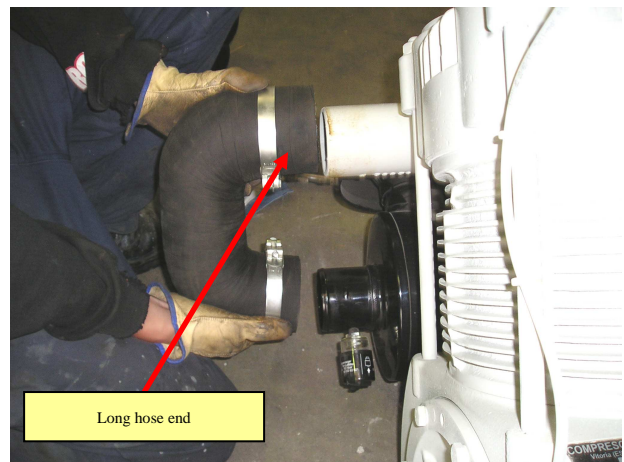


Disassemble Standard Valves From Machine

1. Remove standard air cleaner rubber elbows from either side of machine.



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2. Fit new reinforced air cleaner rubber elbows on either side of machine.
 - Ensure long hose end is fitted to compressor inlet pipe and short hose end to air cleaner outlet.

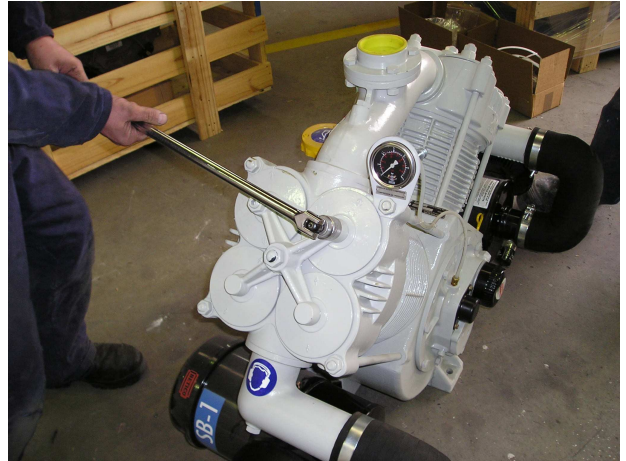


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3. Fit both hose clamp bolts horizontal with bolt heads facing out.
 - Ensure that clamp is horizontal with pipe as hose may be cut at an angle.
 - Clamp should be positioned 3 to 5mm back from end of hose to ensure hose is firmly held.



Betico Unloader Kit – Assembly Instructions

4. Loosen valve adjusting nuts from each exhaust valve.
 - Two valve adjusting nuts per side.



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5. Loosen valve adjusting studs from each exhaust valve.
 - Two valve adjusting studs per side.



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6. Loosen valve retaining nut from each cylinder head.



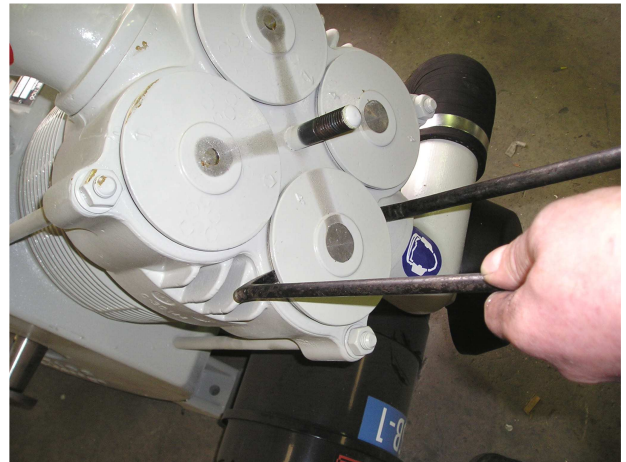
Betico Unloader Kit – Assembly Instructions

7. Remove valve clamp from each cylinder head.



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8. Remove inlet valve retainers by levering under side lip with two levers to ensure even extraction.

Note: Two inlet valves per cylinder head.



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9. Remove inlet valve from cylinder head by hand.

Note: Two inlet valves per cylinder head.



Assemble New Inlet Valves

10. Insert stud into inlet valve lower body.

Insert: Stud is a tolerance fit so will need to be pressed into place.

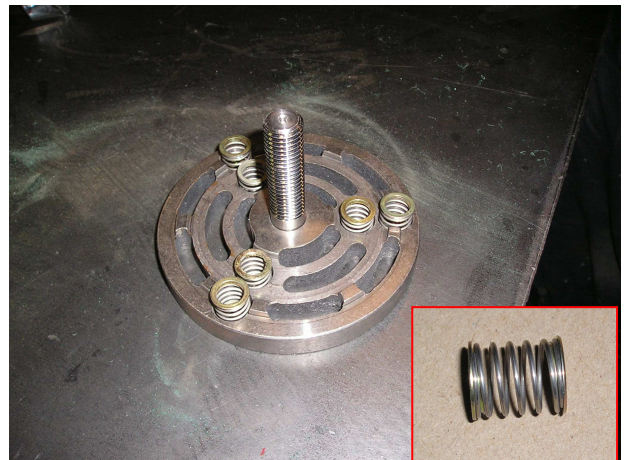
Note: Four inlet valves.



11. Insert valve springs into valve lower body.

Note: Six valve springs per valve.

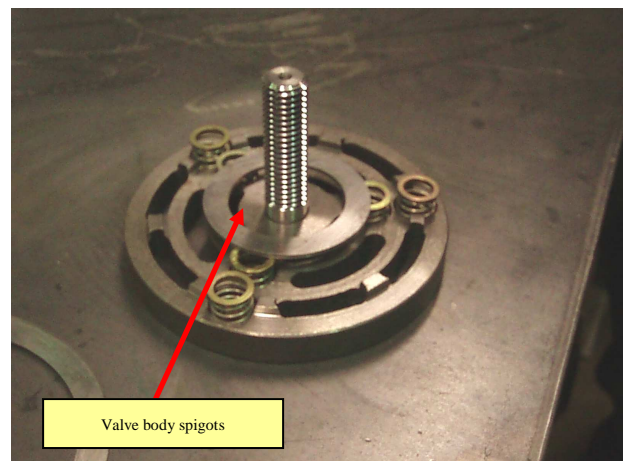
Insert: Ensure valve spring has flanges on each end.



12. Place small thin disk and small thick disk together over springs.

Note: Always put thin disk towards spring.

Note 2: Ensure that disks do not foul valve body spigots.

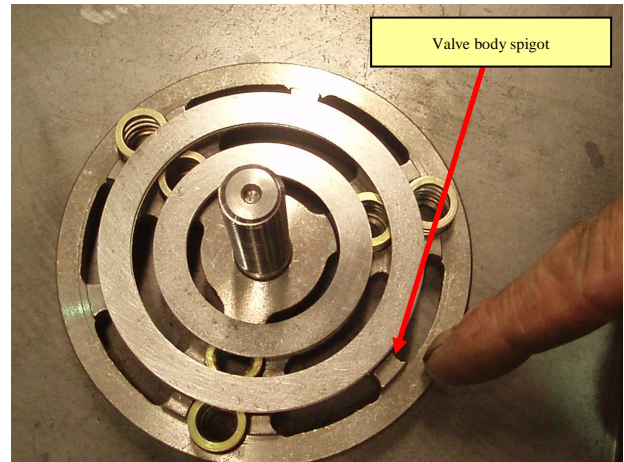


Betico Unloader Kit – Assembly Instructions

13. Place medium thin disk and medium thick disc together over springs.

Note: Always put thin disk towards spring.

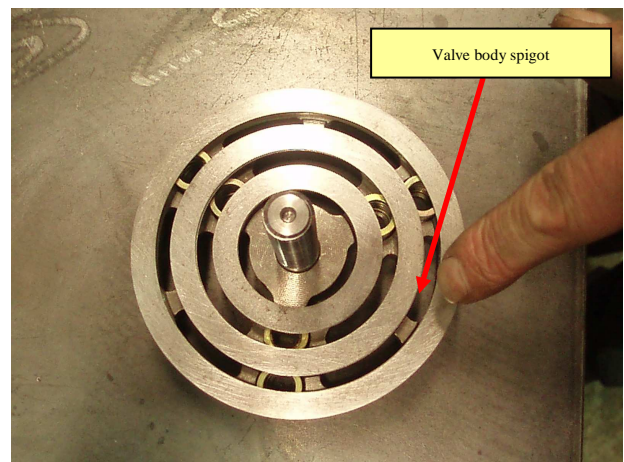
Note 2: Ensure that disks do not foul valve body spigots.



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14. Place large thin disk and large thick disc together over springs.

Note: Always put thin disk towards spring.

Note 2: ensure that disks do not foul valve body spigots.



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15. Fit valve body over stud and ensure that casting mark on body is in line with one row of springs.



Betico Unloader Kit – Assembly Instructions

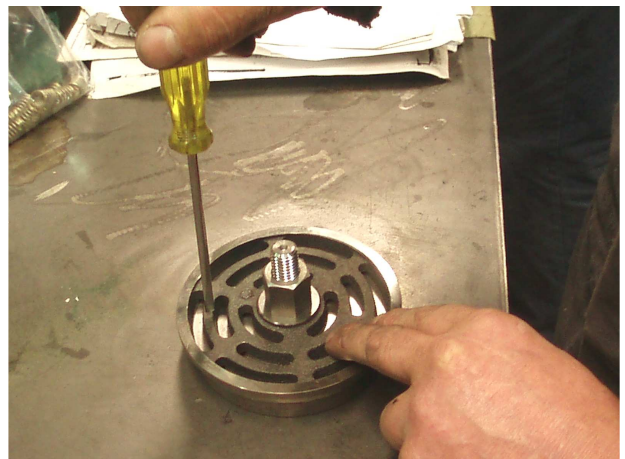
16. Press valve upper body down to ensure disks do not foul spigots.



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17. Fit nut to stud with machined surface towards valve body – finger tight.



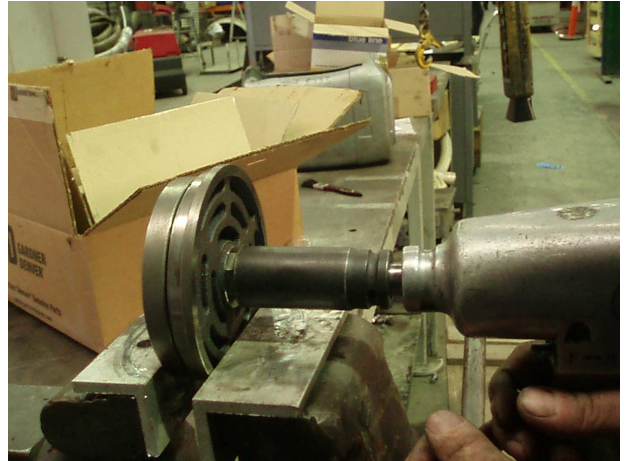
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18. Use a screw driver and press on disk sets to ensure movement i.e. correctly seated.



Betico Unloader Kit – Assembly Instructions

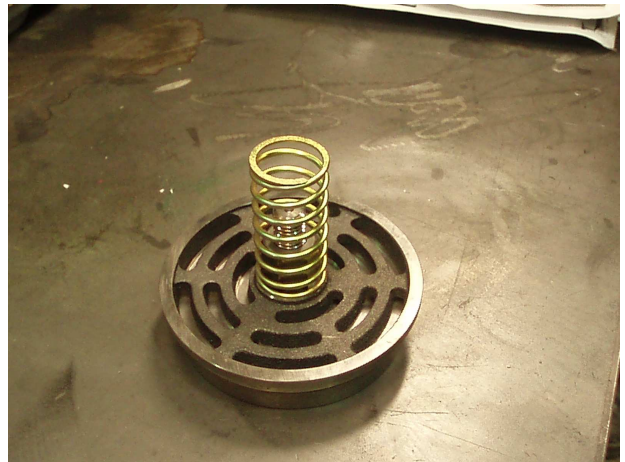
19. Hold valve in vice and tighten nut.

Note: Four valves



20. Fit valve spring over stud.

Note: Four valves



21. Fit spider hub over valve body.

Note: Ensure that legs of spider hub locate through cut outs in valve body and push on disks.



Betico Unloader Kit – Assembly Instructions

22. Fit spring top to stud through spider hub and screw down – finger tight.



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23. Hold valve assembly in vice and tighten spring top with spanner until it bottoms out on inner nut.

Note: Ensure spider hub has movement – pushing onto disks.

Note 2: Four valves.



Reassemble Compressor

24. Insert valve body into inlet port and ensure that it seats properly onto copper washer.

Note: Ensure copper washer is reusable, if not replace.

Note 2: Four valves.



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25. Apply rubber grease to O Rings and fit O Rings to valve piston, cover O Ring outer with rubber grease.

Note: Two O Rings per piston.

Note 2: Four valve pistons.



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26. Insert valve piston into inlet valve retainer, hollow side of valve piston away from valve retainer.

Note: Four valve pistons.

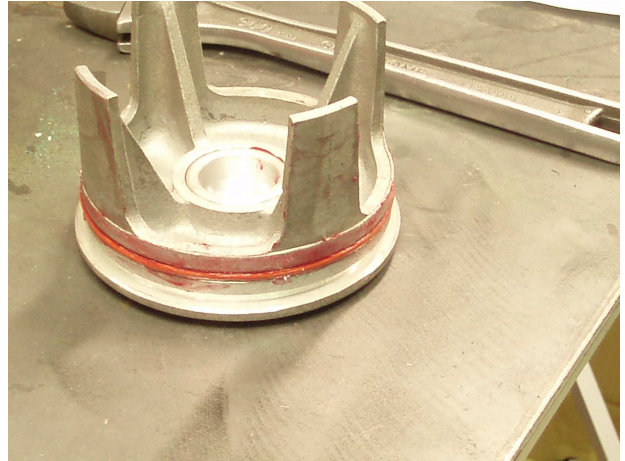


Betico Unloader Kit – Assembly Instructions

27. Apply rubber grease to valve retainer O Ring and fit O Ring into groove in valve retainer – cover O Ring outer with rubber grease.

Note: One O Ring per valve retainer.

Note 2: Four valve retainers.



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28. Insert inlet valve retainer into cylinder block ensuring that the cast arrow on valve retainer lines up with cut out notch cast into cylinder block i.e. this ensures correct air flow path through valve retainer legs.

Note: Four valve retainers.



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29. Hold valve retainer firmly and tap home with rubber mallet to fully seat.

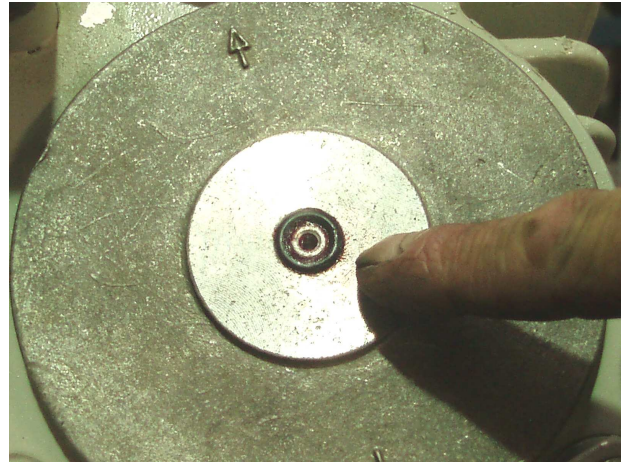
Note: Four valve retainers.



Betico Unloader Kit – Assembly Instructions

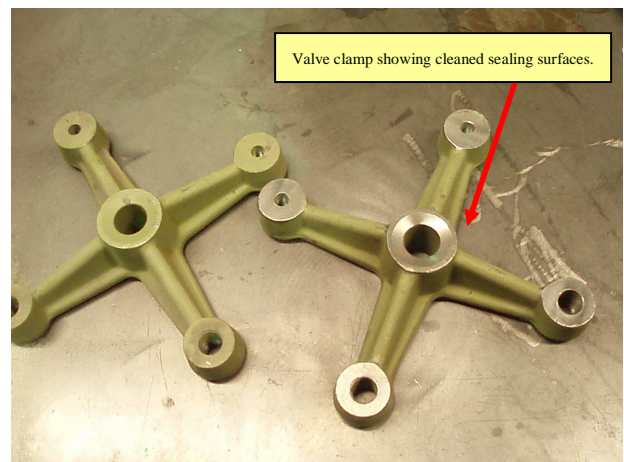
30. Apply rubber grease to small O Ring and insert into groove in top of inlet valve retainer.

Note: Four valve retainers.



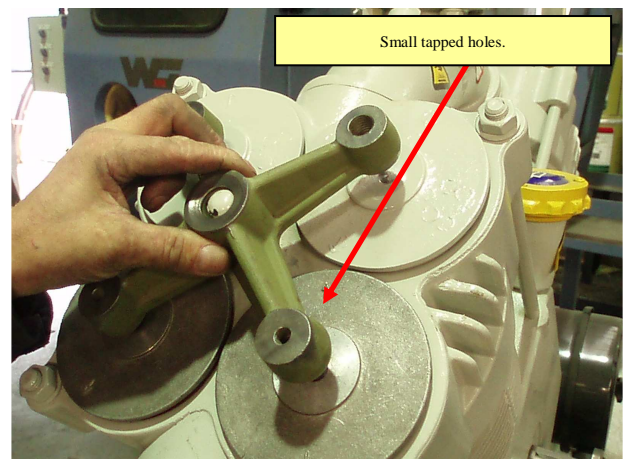
31. Clean paint from sealing surfaces of valve clamp both top and bottom.

Note: Two valve clamps.



32. Fit valve clamp over centre stud of cylinder block with smaller tapped holes over inlet valve retainers ensuring that these holes line up with the small holes in the top of the inlet valve retainers.

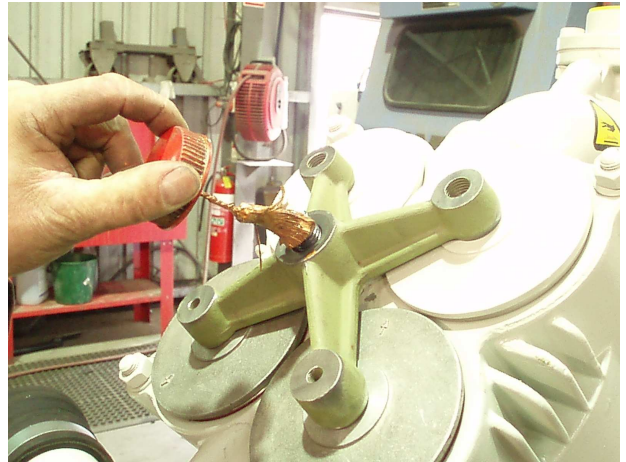
Note: Two valve clamps.



Betico Unloader Kit – Assembly Instructions

33. Apply small amount of anti-seize to thread on stud.

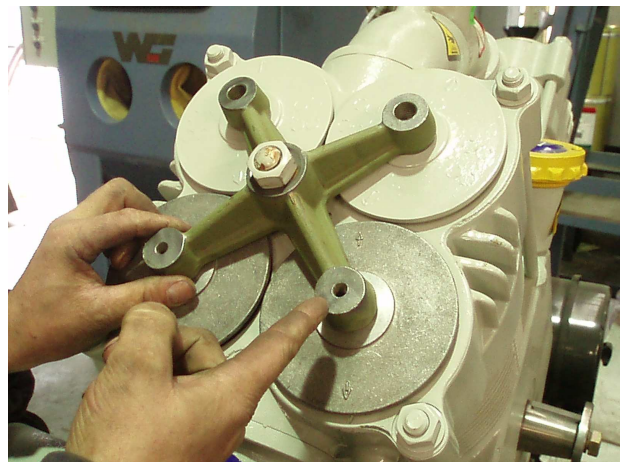
Note: Two studs.



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34. Fit stud nut over valve clamp – finger tight.

Note: Ensure that clamp nut is central in valve clamp recess.

Note 2: Ensure that small tapped holes in valve clamp line up with air path holes in valve retainer.



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35. Torque nut to 8 mkg (60ft/lbs).

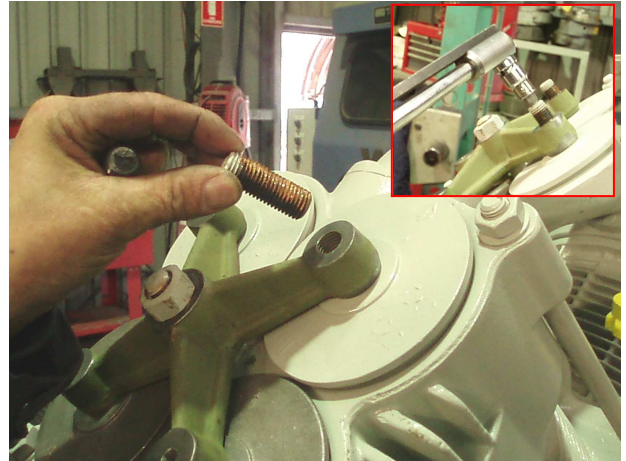
Note: Recheck that small tapped holes in valve clamp line up with air path holes in valve retainer.



Betico Unloader Kit – Assembly Instructions

36. Apply anti-seize to adjusting stud and fit to valve clamp - torque adjusting stud to 3 mkg (20ft/lbs).

Note: Four adjusting studs.



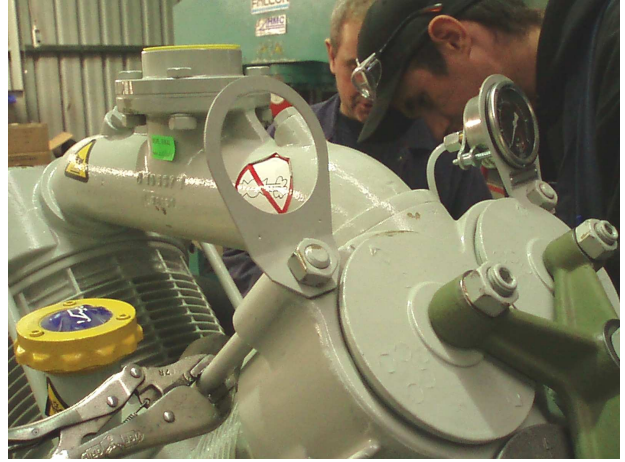
37. Fit lock nut to adjusting stud and torque lock nut to 14 mkg (100ft/lbs).

Note: Four lock nuts.



Plumbing of Unloader Kit

38. Fit air pressure gauge bracket to cylinder stud opposite to oil pressure gauge and re-torque lock nut to 6 mkg (40ft/lbs).



39. Fit air pressure gauge to bracket.



40. Fit pressure regulator valve bracket to opposing cylinder stud on opposite cylinder block and re-torque nut to 6 mkg (40 ft/lbs).

Note: Bracket points out towards driveshaft side of machine.



Betico Unloader Kit – Assembly Instructions

41. Fit external reducing bush to pressure regulator valve using LocTite 567 Thread Sealant.



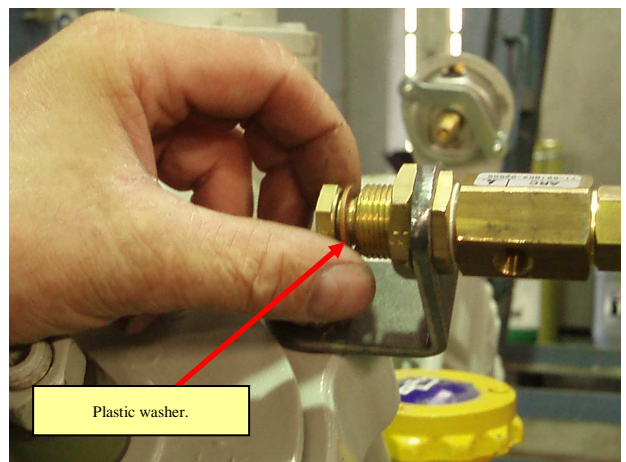
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42. Fit pressure regulator valve to bracket with inlet hole facing towards outside of machine i.e. towards inlet valves on same cylinder block.

Note: Pressure regulator valve faces towards drive shaft end of machine.



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43. Fit internal reducing bush to end of pressure regulator valve – No thread paste.

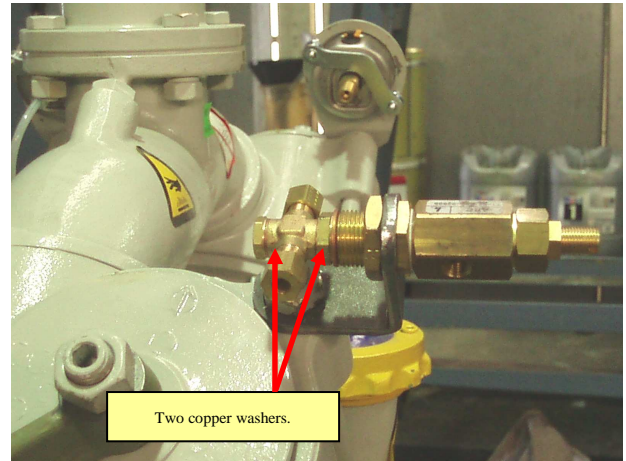
Note: Ensure plastic washer is removed and copper washer is fitted.



Betico Unloader Kit – Assembly Instructions

44. Fit Banjo T Piece air line fitting to end of pressure regulator valve and tighten – No thread paste.

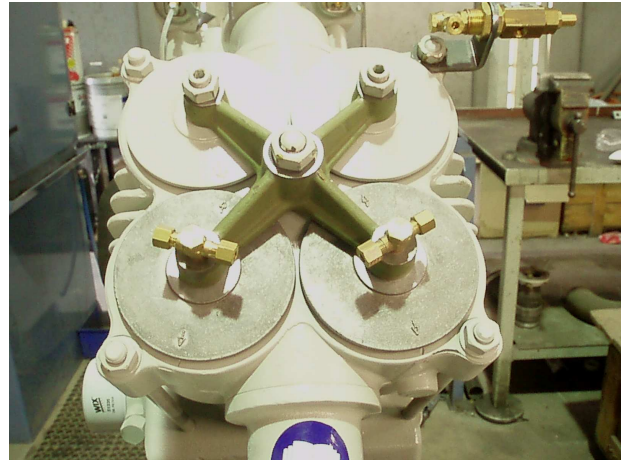
Note: Ensure two copper washers are fitted.



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45. Fit one Banjo T Piece air line fitting to each small tapped hole in valve clamp over inlet valves in nearest cylinder block to pressure regulator valve – No paste.

Note: Leave banjo bolts loose until air lines are fitted.

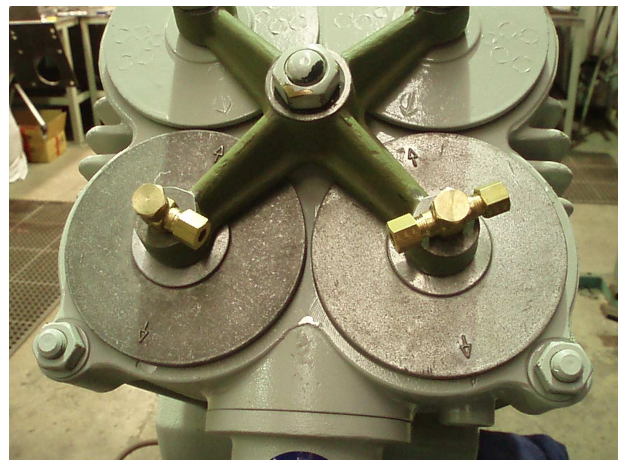
Note 2: Two copper washers per fitting.



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46. Fit one Banjo T Piece air line fitting to R/H side inlet valve and one Banjo Single air line fitting to L/H side inlet valve on pressure gauge side cylinder block – No paste.

Note: Leave banjo bolts loose until air lines are fitted.

Note 2: Two copper washers per fitting.



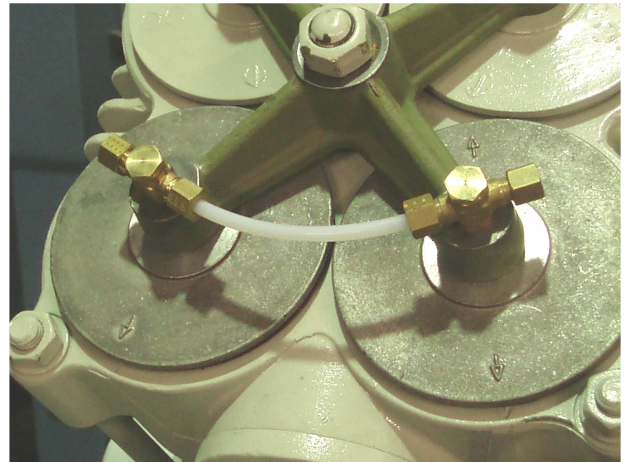
Betico Unloader Kit – Assembly Instructions

47. Measure and cut air lines with special cutting tool as they are fitted.

Note: Ensure that each air line end is fitted using nut, olive and insert.

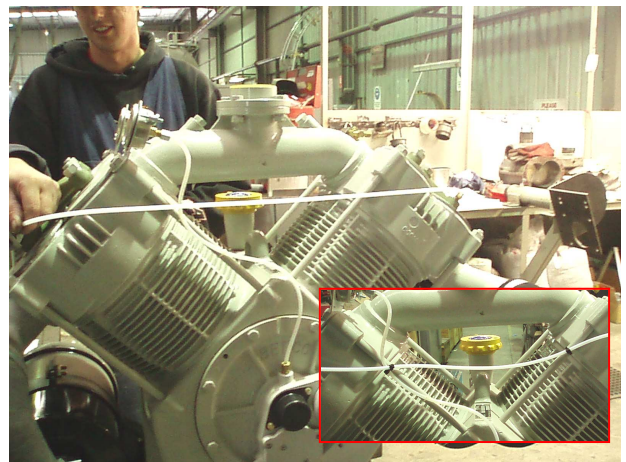


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48. Fit air line between inlet valves on pressure regulator valve side and tighten nuts.



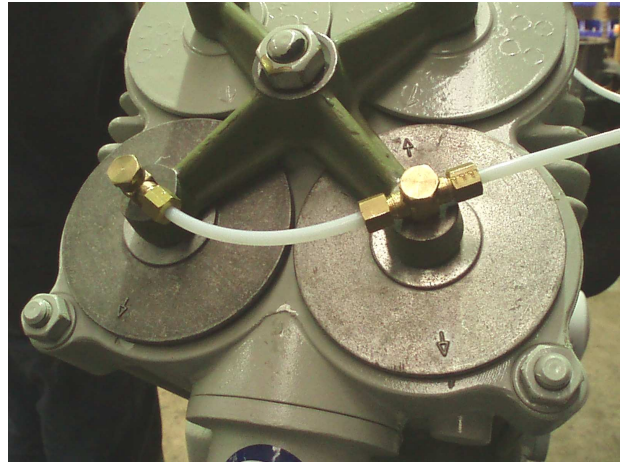
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49. Fit air line between cylinder blocks and tighten nuts.

Note: Cable tie air line to cylinder studs.



Betico Unloader Kit – Assembly Instructions

50. Fit air line between inlet valves on pressure gauge side and tighten nuts.



51. Fit air line between pressure regulator and pressure gauge using zinc plated nut with olive and insert.

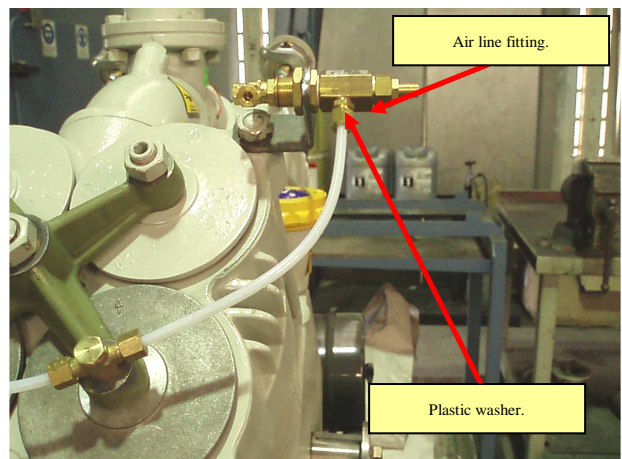
Note: Ensure to hold gauge with spanner when tightening nut or gauge will be damaged.



52. Fit air line fitting into side of pressure regulator valve pointing towards first Banjo T Piece fitting.

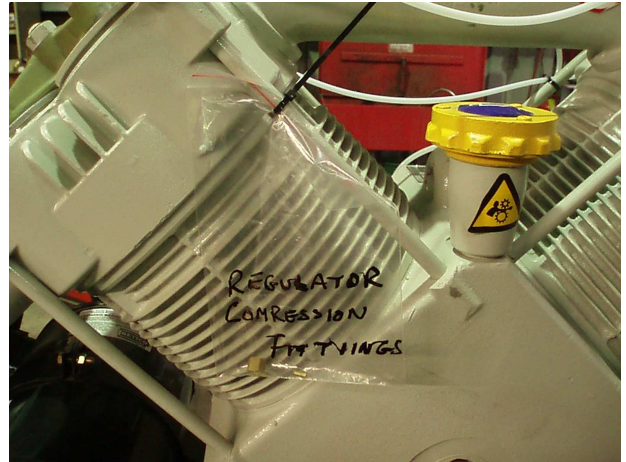
53. Fit air line between first Banjo T Piece fitting in inlet valve retainer and body of pressure regulator valve.

Note: Ensure plastic washer is removed and copper washer is fitted.

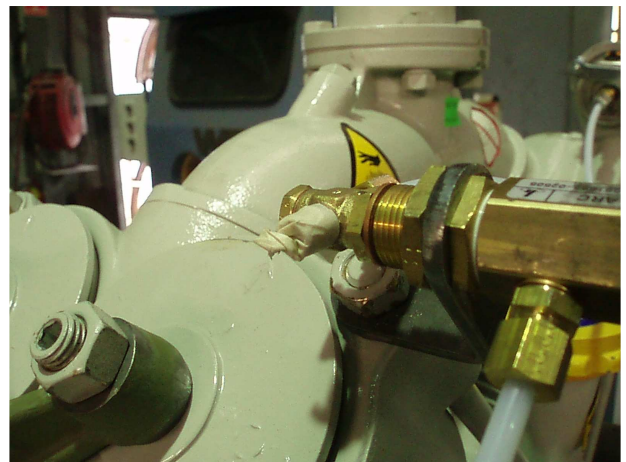


Betico Unloader Kit – Assembly Instructions

54. Put remaining olive, nut and insert in plastic bag and cable tie to machine for customer to fit.



55. Put tape over open hole in Banjo T Piece air line fitting (opposite pressure gauge) to ensure no dirt enters during shipping.



56. Machine is now ready for installation or packaging for shipment to customer.